This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-20 Canceled

21. (Withdrawn) A method for testing an unknown sample suspected of having *E. coli* or *Shigella* species presence comprising

demonstrating an identifying nucleotide or identifying combination of nucleotides of 16s rRna or 16s rDNA as set forth in Table 2 within the sample

wherein the demonstration of an identifying nucleotide or identifying combination of nucleotides establishes presence or absence of *E. coli* or *Shigella* in the sample.

22. (Withdrawn) The method of claim 21 wherein the demonstrating is by a method selected from the group consisting of direct sequencing, dot blot hybridization, solution hybridization, Northern blotting, and Southern blotting of the unknown sample.

23. (Withdrawn) The method of claim 21 wherein the unknown sample is suspected of containing *E. coli* and the identifying nucleotide is a T at position 88p.

24. (Withdrawn) The method of claim 21 wherein the unknown sample is suspected of containing *Shigella sonnei* and the identifying nucleotide is a C at position 964, or a deletion at position 978.

25. (Withdrawn) The method of claim 21 wherein the unknown sample is suspected of containing *Shigella dysenteriae* and the identifying nucleotide is an A at position 76.

26. (Withdrawn) The method of claim 21 wherein the unknown sample is suspected

of containing *Shigella boydii* and the identifying nucleotide is a C at position 92.

27. (Withdrawn) The method of claim 21 wherein the unknown sample is suspected of containing *Shigella flexneri* and the identifying nucleotide is a G nucleotide at position 79 in combination with a G at position 89 or a C at position 92p.

28. (Withdrawn) The method of claim 21 wherein the unknown sample is a clinical sample for diagnosis.

29. (Withdrawn) The method of claim 21 wherein the unknown sample is a food sample.

30. (Withdrawn) The method of claim 21 wherein the unknown sample is an environmental sample.

31. (Withdrawn) An assay kit for distinguishing *Shigella* from *E. coli* comprising the purified nucleic acid molecule of claim 11 packaged in at least one container.

32. (Withdrawn) An assay kit for distinguishing *E. coli* from *Shigella* comprising the purified nucleic acid molecule of claim 12 packaged in at least one container.

33. (Withdrawn) An assay kit for identifying *Shigella sonnei* comprising the purified nucleic acid molecule of claim 14 packaged in at least one container.

34. (Withdrawn) An assay kit for identifying *Shigella flexneri* comprising the combination of nucleic acid molecules of claim 18 packaged in at least one container.

35. (Withdrawn) An assay kit for identifying *Shigella boydii* comprising the purified nucleic acid molecules of claim 16 packaged in at least one container.

36. (Withdrawn) An assay kit for identifying *Shigella dysenteriae* comprising the purified nucleic acid molecule of claim 15 packaged in at least one container.

37-46 Canceled

47. (Previously Presented) An isolated nucleic acid molecule comprising SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6,

or an RNA equivalent thereof,

or a nucleic acid complementary to said isolated molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

or a nucleic acid substantially complementary to said isolated molecule which is capable of hybridizing to the nucleic acid molecule under the following stringent conditions:

hybridization at 40°-65 °C for 14-16 hours in a hybridization solution at ph 7.8,

containing 0.9 M NaCl, 0.12 M Tris-HCl, 6nM EDTA, 0.1M sodium phosphate buffer,

0.1% SDS and 0.1% polyvinylpyrrolidone,

followed by three 15-minute washes at 40°-65 °C to remove unbound probes in a solution at pH 7, containing 0.075 M NaCl, 0.0075 M Na Citrate and 0.1% SDS

48. (Previously Presented) An isolated nucleic acid molecule consisting of

SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6,

or an RNA equivalent thereof,

or a nucleic acid complementary to said isolated molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

or a nucleic acid substantially complementary to said isolated molecule which is capable of hybridizing to the nucleic acid molecule under the following stringent conditions:

hybridization at 40°-65 °C for 14-16 hours in a hybridization solution at ph 7.8, containing 0.9 M NaCl, 0.12 M Tris-HCl, 6nM EDTA, 0.1M sodium phosphate buffer, 0.1% SDS and 0.1% polyvinylpyrrolidone,

followed by three 15-minute washes at 40°-65 °C to remove unbound probes in a solution at pH 7, containing 0.075 M NaCl, 0.0075 M Na Citrate and 0.1% SDS.

49-51 Canceled

52. (Previously Presented) The isolated nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO: 6.

53. (Previously Presented) An isolated nucleic acid molecule comprising a nucleotide sequence of SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6,

or an RNA equivalent thereof,

or a nucleic acid complementary to said isolated molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules.

54. (Canceled)

55. (Previously Presented) A probe which

a) targets *Shigella flexneri* comprising a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 3, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

b) targets *Shigella sonnei* comprising a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 4, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

c) targets *Shigella dysenteriae* comprising a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 5, an RNA equivalent thereof, or a nucleic acid

complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

or

d) targets *Shigella boydii* comprising a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 6, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules.

56. (Previously Presented) A probe which

a) targets *Shigella flexneri* consisting of a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 3, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

b) targets *Shigella sonnei* consisting of a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 4, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

c) targets *Shigella dysenteriae* consisting of a fragment greater than 10 to 40 bases in length of a nucleotide sequence SEQ ID NO: 5, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules,

or

d) targets *Shigella boydii* consisting of a fragment greater than 10 to 40 bases in length of

a nucleotide sequence SEQ ID NO: 6, an RNA equivalent thereof, or a nucleic acid complementary to said molecule, capable of base-pairing according to the standard Watson-Crick complementarity rules.

57. (Previously Presented) A probe as in claim 55 which comprises 15-25 bases in length.

58. (Previously Presented) A probe as in claim 56 which comprises 15-25 bases in length.